



HIGHLIGHT: Cholera, malaria, measles and Meningitis continued to affects some African countries as reported by some sources. High amounts of rainfall were observed over parts of the Gulf of Guinea, northern part of Central Africa and north-western part of GHA countries. Above normal temperature was mostly observed in the north-western part of the continent.

1. CLIMATIC AND ENVIRONMENTAL CONDITIONS OVER AFRICA

1.1 Inter-Tropical Discontinuity (ITD)

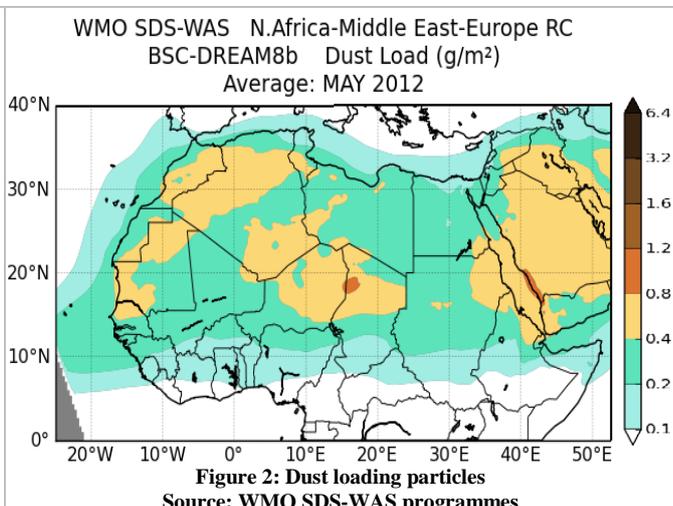
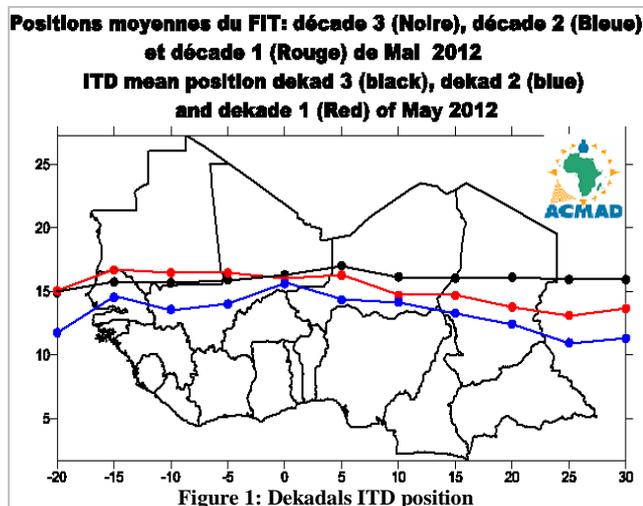
The ITD is the demarcation line between north/north-eastern winds from the Sahara (hot, dry and dusty) and south/south-western winds from Atlantic Ocean (cool and moist) as seen in Figure 1.

Between the first dekad (red line) and the second dekad (blue line) of May 2012, the ITD moved southwards between 2 and 4 degrees of latitude over most of the domain.

Between the second dekad (blue line) and the third dekad (black line), the ITD had a northwards migration between 2 and 5 degrees of latitude over most parts of the domain except over the eastern Mali.

1.2 Dust Haze

The figure 2 below shows mean dust events in the month of May 2012 from WMO SDS-WAS Programme: BSC-DREAM8b model shows the dust loading particles (0.1 to 0.4 g/m²) over most localities above 05°N intensifying to moderate dust loading particles ranging from 0.4 to 0.8 g/m² over northern Chad, eastern Niger, western Mauritania, most of Morocco, most of Algeria, south Tunisia, western Libya, south-eastern Egypt and north-eastern Sudan with the maximum dust loading particles (0.8 to 1.2 g/m²) over northwest Chad.



1.3 Rainfall

The figure 3 below on estimated cumulative rainfall shows spatial distribution of rainfall along with observed amounts where:

- **North Africa countries** had no significant amounts of rainfall.
- **The Sahel countries:** had rainfall amounts between 10mm to 150mm over the southern part intensifying from 150mm to 250mm over southern Chad.
- **Gulf of Guinea countries:** had rainfall amounts ranging from 10mm to 250mm intensifying to a maximum of 400mm over Sierra Leone and Nigeria.
- **Central Africa countries** had rainfall amounts ranging from 10mm to 300mm increasing to the maximum ranging from 300mm to 400mm over Democratic Republic of Congo and Congo.
- **GHA countries:** had rainfall amounts ranging between 10mm to 300mm intensifying to amounts between 300mm to 400mm over the highlands of Ethiopia, southern Uganda and northern western Tanzania.
- **Southern Africa countries:** had no significant amounts of rainfall. Northern part of Madagascar had rainfall amounts ranging from 10mm to 150mm.

The May, 2012 rainfall anomaly derived from long-term mean period of 1979-2000 (Figure 4), shows rainfall deficits over western and eastern parts of the Gulf of Guinea countries, north-western part of Central Africa, northern and eastern part of GHA countries and north-eastern part of Southern Africa and southern Madagascar while excessive rainfall was observed over south-eastern part of the Sahel, northern part of the Gulf of Guinea countries, most of Central Africa, Great Lakes countries and northern part of Madagascar.

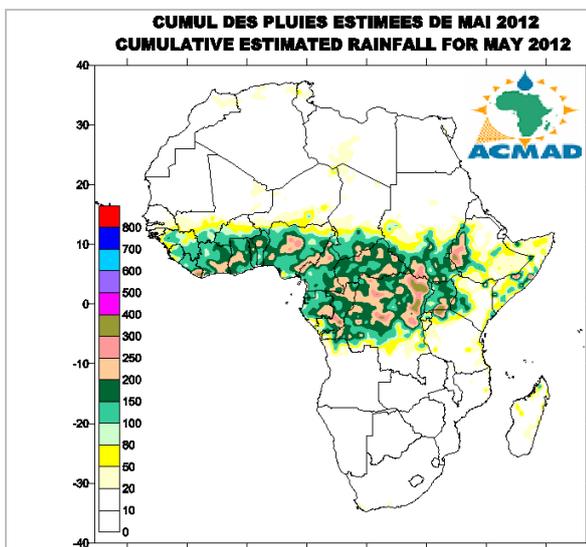


Figure 3: Monthly cumulative rainfall for May 2012
Data Source: NOAA/NCEP

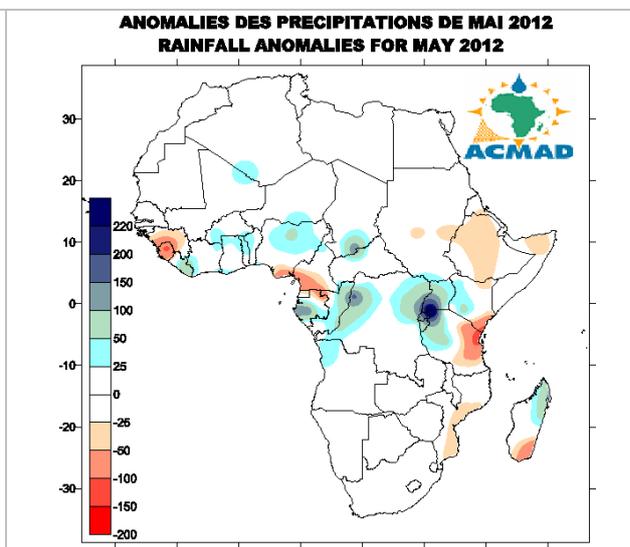


Figure 4: Monthly Rainfall anomalies for May 2012
Data Source: NOAA/NCEP

1.4 Relative Humidity

The mean surface relative humidity map (Figure 5) shows that the month of May had high surface relative humidity ranging from 70% to 100% over southern part of the Gulf of Guinea countries, the entire Central Africa region, southern and western parts of GHA countries and extreme eastern parts of southern Africa including Madagascar. However, low relative humidity (<40%) prevailed over most localities north of 10°N of latitude covering most of the Sahel, the Sahara, extreme northern part of the Gulf of Guinea countries, most part of Northern Africa as well as western part of Southern Africa.

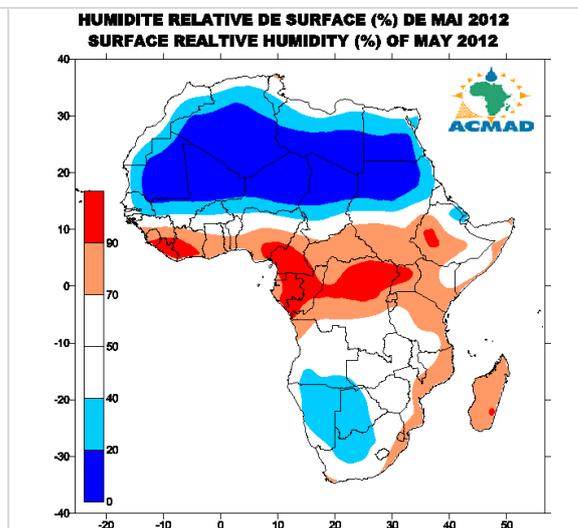
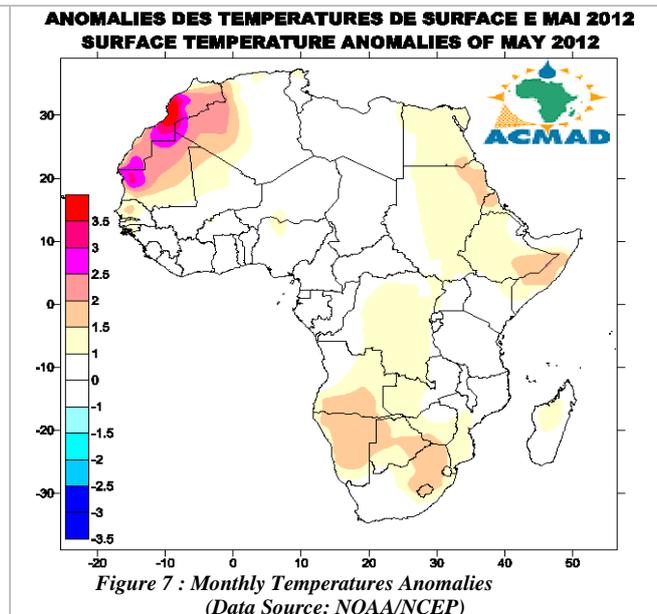
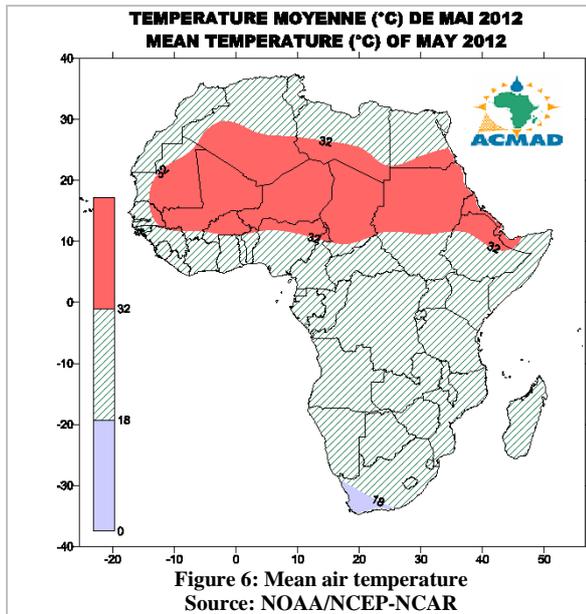


Figure 5: Surface Relative Humidity
Source: NOAA/NCEP-NCAR

1.5 Air Temperature

The temperature map below (Figure 6) shows that, most of African countries experienced temperatures ranging from 18°C to 32°C (shaded area). The exception is that the extreme southern part of the continent (in blue colour) experienced temperature below this threshold while the Sahel, extreme northern part of the Gulf of Guinea countries and southern part of the Northern Africa (in red colour) had temperatures above the threshold.

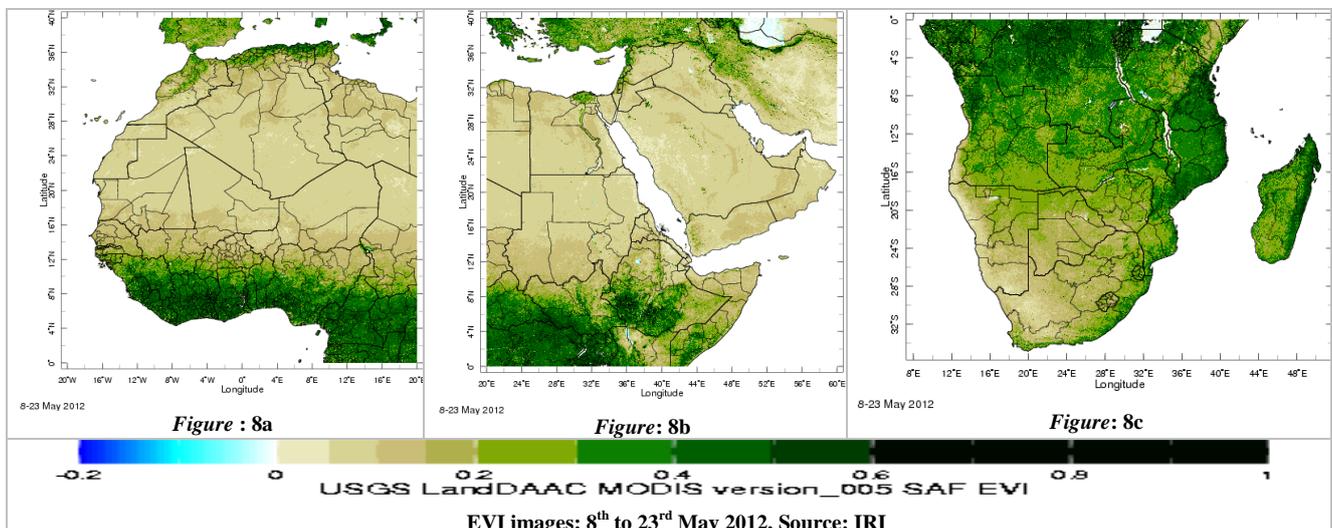
The difference between actual temperature and the reference period (1971-2000) in figure7 shows that the temperatures were warmer (above 1°C) over north-eastern, Central, Southern and north-western part of the continent with the highest temperature anomalies between 2°C and 35°C over Mauritania and Morocco.



1.6 Vegetation Index

The EVI-MODIS images from 8th to 23rd May, 2012 (Figures 8a, 8b and 8c) displayed high vegetation cover over some coastal zones of Northern Africa, most part of the Gulf of Guinea countries, extreme southern part of the Sahel, most of Central Africa countries, southern part of GHA countries including part of Ethiopian highlands, extreme eastern part of Southern Africa and most of Madagascar. Elsewhere, had low to none existence of vegetation cover.

The breeding of mosquitoes was high in areas with thick vegetation cover as shown in these regional images.



2. CLIMATE RELATED DISEASES

During May 2012, outbreak of cholera continued to be observed in Democratic Republic of Congo, Ghana, Uganda, Zimbabwe and Mali as reported in Pro-Med mail and Relief Web. According to the same sources, some cases of Measles were observed in Sudan, Uganda and Mali.

The wet conditions with the prevailing high temperatures and vegetation cover in several parts of Africa continued to support the breeding of mosquitoes and increased incidences of malaria over several parts of the Continent. There has been noticed increase of malaria cases in Nigeria and Madagascar in Pro-Med Mail.

On the epidemiologic situation of the meningitis, the period from 30th April to 20th May 2012, was marked by exceeded epidemic threshold in some districts in Benin, and Chad. A total number of that period is 1051 cases with 92 deaths reported by the WHO inter Country Supporting team-West Africa with 4 districts on alert and 5 districts that crossed the epidemic threshold. The spatial distribution of meningitis during the same period is as follows: Benin (54 cases with 7 deaths, 1 district on alert and 1 on epidemic), Burkina Faso (345 cases with 4 deaths), Cameroon (15 case with no death), Central African Republic (no data), Côte d'Ivoire (14 cases with 5 deaths and 1 district on alert), Ethiopia (9 cases), Gambia (1 case with no death), Ghana (13 cases with no death), Mali (42 cases with no death), Niger (12 cases with 5 deaths), Nigeria (62 cases with 4 deaths), Democratic Republic of Congo (164 cases with 18 deaths), Senegal (11 cases without death), Sudan (34 cases with 2 deaths), Chad (164 cases with 4 deaths and 2 districts on alert and 4 districts on epidemic),Togo (11 cases with 1 death).

3. OUTLOOKS

The ITD will continue its northward migration, leading to the increase of moisture influx into the atmosphere over the Gulf of Guinea and most of the Sahel countries. Part of the Gulf of Guinea countries, northern part of Central Africa countries and part of GHA countries will continue to receive significant amounts of rainfall with localised heavy rainfall.

The expected heavy rainfall with floods may continue to cause damages on life and property over some parts of the Gulf of Guinea countries, northern part of Central Africa countries as well as western part of GHA countries.

The epidemiological situation of the meningitis over African belt will continue to decrease with decreasing number of cases due to the effect of rainfall over the Sahel and northern part of the Gulf of Guinea countries. However some localised cases will continue to be observed over the Africa meningitis belt.

The observed and expected heavy rainfall with localized floods over parts of the Sahel, the Gulf of Guinea, Greater Horn of Africa and Central Africa countries could lead to increased outbreaks of malaria and other water borne diseases such as cholera, diarrhoea, etc.

3.1 Malaria

The incidences of malaria will be higher in areas with high temperatures especially in the range of 18°C to 32°C, high relative humidity (above 70%)/rainfall and thick vegetation cover providing conducive environmental conditions for the survival of the vector and development of the parasites.

Based on the above conditions (climatic and environmental parameters) observed during the past month and conditions expected for the next month, the most suitable parts to incidences of malaria will mostly parts of the Gulf of Guinea countries, most part of Central Africa countries, western and northern parts of GHA countries including the Ethiopian highlands, eastern part of Southern Africa countries including most of Madagascar.

3.2 Meningitis

Based on climatic parameters (low/no rainfall, low relative humidity, high temperature range, occurrence of dust episodes, etc) the meningitis epidemiologic season will continue to decrease due to the impact of rainfall

over the Sahel and the Gulf of Guinea countries. However some localized cases will continue to be observed in some part of the meningitis belt.

3.3 Cholera

According to the Relief Web, during the month of May, 2012, heavy rainfalls with floods were observed over Kenya, Ethiopia, Somalia and Uganda. These countries, as well as areas with excessive amounts of rainfall in Figure 4 will have to be under surveillance to guard against the spreading of cholera outbreaks and other water borne diseases.

3.4 Flu and others respiratory diseases

Areas under the influence of Harmattan with dust episodes will continue to observe incidences of flu and other respiratory diseases such as asthma, bronchitis, etc. The effects will be high in the northern part of the Sahel and Sahara areas.

3.5 ACMAD Seasonal Climate Outlook

3.5.1 Seasonal Rainfall outlook for Africa issued in April 2012 for MJJ and JJA

In May-June-July 2012 (figure12):

- Slightly below average precipitation is very likely along the West African coast from Liberia to Benin;
- Above average precipitation is very likely during MJJ 2012 over southern Nigeria, southern Chad and northern Cameroon and the highlands of East Africa from Ethiopia to Tanzania;

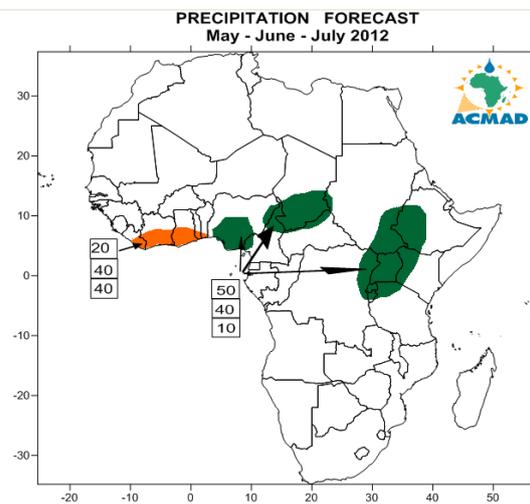


Figure 12: ACMAD rainfall outlook for MJJ

In June-July-August 2012 (figure:13) ,

- slightly below average precipitation is very likely over the west African coast from southern Senegal to southern Benin;
- above average precipitation is very likely over southwestern Sudan and the East African highlands from Ethiopia to Tanzania and around the lake Chad area in Niger, Nigeria, Chad and Cameroon

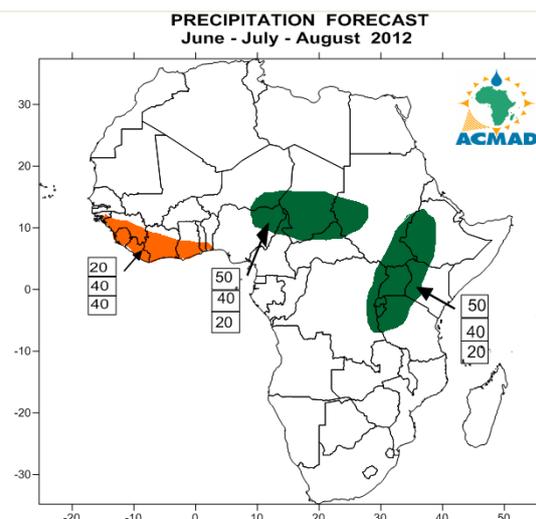


Figure 13 : ACMAD rainfall outlook for JJA

3.5.2 Seasonal Temperature outlook for Africa issued in April 2012 for MJJ and JJA

The following outlooks are provided for MJJ (figure 14) and JJA (figure 15) 2012 seasons across Africa:

- ✓ Above average (anomalies of +1°C or more) near surface air temperature is very likely over north and Sahel region of Africa for MJJ and JJA 2012;
- ✓ Slightly above average near surface temperature is very likely over southern Madagascar;
- ✓ Slightly below average precipitation is very likely along the West African coast from Liberia to Benin;

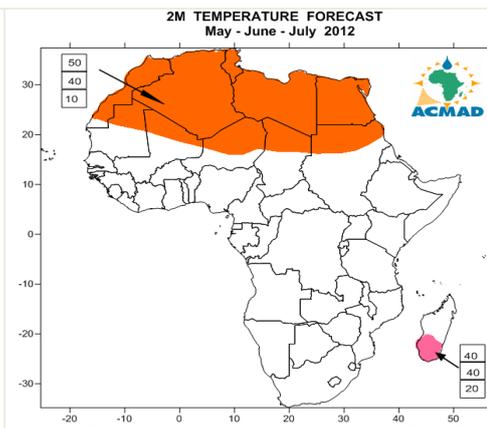


Figure 14: seasonal Temperature outlook for Africa issued in April 2012 for MJJ

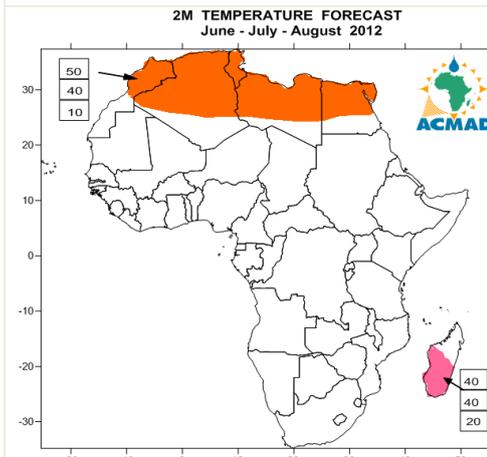


Figure 15: seasonal Temperature outlook for Africa issued in April 2012 for JJA

3.5.1 Seasonal Rainfall outlook for Africa issued in May 2012 for JAS

- ✓ Above normal precipitation very likely over eastern Sahel (zone II) around Lake Chad in Niger, over north-eastern Nigeria and much of Chad. About 100% to 130% of normal precipitation is expected over much of this zone;
- ✓ Below normal to normal precipitation very likely over the Western Sahel (zone I) in the northern half of Senegal, Southern part of Mali and Southern Mauritania. About 70% to 90% of normal precipitation is expected for zone 1;
- ✓ Above normal to normal precipitation is very likely (zone III) over much of Burkina Faso and northern parts of Togo, Benin and Ghana. About 80 to 130% of the normal precipitation is expected for zone 3;
- ✓ Normal precipitation is very likely (zone IV) along the West African coast from Liberia to Nigeria and much of the southern part of Cameroon;
- ✓ There is no evidence for a favorable precipitation category over the rest of the domain. Therefore, Climatology is suggested over the area.

SEASONAL PRECIPITATION FORECAST FOR JULY-AUGUST-SEPTEMBER 2012
ISSUED ON 23rd MAY 2012

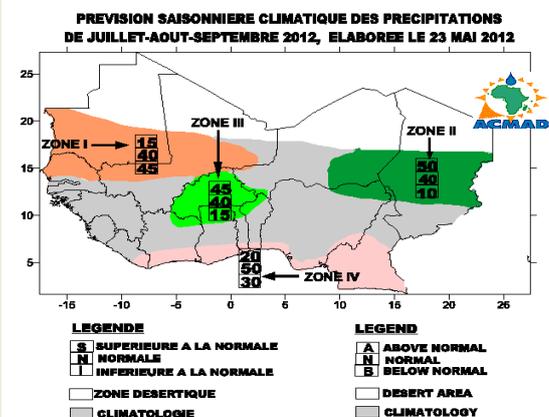


Figure16 : Seasonal rainfall Outlook for JAS 2012, issued in May by ACMAD

Map showing the zoning with respective probabilities of terciles occurrences for JAS season : A=above normal ; N : Normal, B : Below normal

The region is not expected to experience severe deficit of precipitation. However, knowledge of sub-seasonal variability of the regional climate and analysis of recent experimental products suggest a late onset of precipitation more likely over zone 1 (Northern Senegal, South eastern Mauritania, Western Mali, The Gambia) and disruptions in the distribution of precipitating events during summer 2012 over much of the region.

This outlook is produced at the regional scale. Thus, its interpretation should be for regional use. For local and/or country adaptation and applications needs of this forecast, it is highly recommended to consult the National Meteorological and Hydrological Services.

ADVICE:

- ✓ *Detailed climate analyses and forecasts at the country scale (including rainfall amounts and the onset) are available from National Meteorological Services.*
- ✓ *The high rainfall variability in the region may cause risks with adverse effects throughout the season, particularly on Life and property (flooding) on plants (locust invasion) and Public Health (malaria epidemics and other waterborne diseases such as cholera).*
- ✓ *We are calling upon the public health sector and humanitarian Agencies to maintain vigilance and make timely responses.*